

## **DIVISION 16 - ELECTRICAL**

### **SECTION 16790 - CLOSED CIRCUIT TELEVISION SECURITY SYSTEM**

#### **PART 1 - GENERAL**

##### **1.01 - DESCRIPTION**

- A. The contractor must provide all supervision, labor, materials, tools, equipment, hardware, software, programming and documentation necessary for the installation, testing and training of a complete closed circuit television security system (CCTV). The intent of this system is to provide facility monitoring of designated areas, to provide continuous recording of all cameras in the system and to allow real time viewing of any camera. See drawings for specific locations of cameras and monitoring station. Work will include installation of all video cameras, digital storage device, cabling, monitoring equipment, power supply and all miscellaneous fittings, connectors, conduit, converters, cables, mounting/ceiling brackets or other hardware required to make a complete working system as specified.
- B. The successful contractor must maintain a support office or staff located within sixty (60) miles of Grosse Ile, Michigan and be able to provide emergency repair technician service on-site in less than one (1) hour response time.
- C. The hardware and software for this CCTV system must be manufactured and distributed by the same company and the installation, testing and training must be completed by factory trained and certified technician(s). All software associated with this system becomes the property of the US EPA and an original copy of the software is to remain on-site. All cameras and recording devices shall be manufactured by a firm whose quality system is in compliance with the ISO 9001 or ISO 14001 Quality System and is certified as such. Because of the requirement for remote monitoring from Duluth, Minnesota, all equipment and software must be of Philips/Bosch manufacturer and compatible with the existing system in Duluth, Minnesota.
- D. The work must be completed by a licensed electrician(s) or technician(s) holding a State of Michigan Low Voltage Alarm & Communications License.

## **PART 2 - PRODUCTS**

### **2.01 - CAMERAS**

- A. Provide high resolution, day/night, digital (DSP), color, CCTV cameras as specified below.
- B. Provide appropriate cable(s) (video, power, control) as detailed on drawings, from each camera to the digital video recorder/multiplexer located in Room 102. Provide required sixteen (16) output, power supply.
- C. Exterior Camera: Day/Night, color, CCD high resolution DSP camera, Philips/Bosch Model ENVD Series camera system (EnviroDome). This is an outdoor weather resistant surveillance domed camera system prepackaged as a complete unit. Camera shall meet the following specifications:
  - 1. Employ 1/4" imager, 18x auto-iris, auto focus zoom lens.
  - 2. Auto day/night function, color/B/W mode.
  - 3. Employ digital image stabilization to electronically compensate for vibrations.
  - 4. Horizontal resolution minimum 470 TV lines (NTSC color).
  - 5. Built-in activity detection and alarm functions.
  - 6. Camera input power requirement of 21-28 VAC.
  - 7. Minimum scene illumination of .002 Lux.
  - 8. Weather resistant in NEMA 4x or IP66 certified enclosure.
  - 9. Outdoor operating temperature to minus 40 degrees F.
  - 10. Bubble to be tinted.
  - 11. 360 degree pan/tilt functions.
  - 12. Provide and install appropriate mounting hardware and supports.
  - 13. Alarm capability.
- D. Interior Camera: Indoor Day/Night, high speed, dome, color CCD camera, Philips/Bosch Model G3B Series BasicDome color camera system. Camera shall meet the following specifications:
  - 1. Employ 1/4" imager, 16x auto-iris, auto-focus zoom lens.
  - 2. Suspended ceiling mount with recessed mounting kit & white trim ring.
  - 3. Minimum scene illumination of .5 lux.
  - 4. Camera input power requirement of 24 VAC.
  - 5. Horizontal resolution minimum 470 TVL (NTSC)
  - 6. Aluminum die-cast case.
  - 7. 360 degree pan/tilt functions.

8. Bubble to be tinted.
  9. Build-in detection and alarm capability.
- E. Provide one (1) new sixteen (16) camera power supply unit, Stealth Laboratories Model PS-2816SR-16. Unit is a 28 volt AC unit with individual On/Off switches in a Nema 1 enclosure.

## **2.02 - DIGITAL VIDEO RECORDER & SOFTWARE**

- A. Provide one (1) new sixteen (16) channel digital video recorder with built-in channel multiplexer and switcher in one (1) unit, Philips/Bosch Divar Model DVR16E.
- B. Digital recorder shall have these functional features:
1. Minimum of 320 GB capacity internal hard drive
  2. M-JPEG video compression
  3. Camera inputs, 16 channels
  4. Monitor outputs, 2 channels
  5. User settable multi-point activity detection sensor
  6. Review stored data while recording without interruption
  7. Respond to control commands from a remote location via a dedicated DSL connection (DSL line furnished by the EPA).
  8. Provide and mount unit in wall rack in Room 102.
- C. Provide recorder keyboard/camera controller for digital video recorder, Philips/Bosch Model KBD-Digital.
- D. Provide a data converter unit (for PTZ control of sixteen [16] cameras) including camera control wiring terminals and cables to DVR unit. Device shall be Philips/Bosch Model LTC8780/60.

## **2.03 - VIDEO RECORDER MONITOR**

- A. Provide one (1) new 17" flat panel LCD monitor equal or equivalent to Dell Model UltraSharp 1703FP.
- B. Monitor shall have an Active Matrix TFT LCD with minimum resolution of 1280 x 1024 pixels, .264 mm pixel pitch.

## **2.04 - PERSONAL COMPUTER SOFTWARE**

- A. Provide required software as recommended by the manufacturer in an existing computer on site. Computer shall be furnished by the EPA. Software to be compatible with existing "Control Center" software residing on a computer at a remote site (Duluth, MN).

- B. Provide Philips/Bosch "Control Center" software or compatible equivalent for installation (by the EPA) on a remote PC located off site for system configuration, camera set-up, remote live video viewing, search & playback, remote pan, tilt and zoom control, video archiving to PC hard drive and on-line status review.
- C. Program software for each camera location: (information provided by EPA).
  - 1. Camera identification/location name.
  - 2. Program each camera to have four (4) preset camera views.
  - 3. Alarm points/ID.

### **PART 3 - EXECUTION**

#### **3.01 - CABLING/POWER REQUIREMENTS**

- A. The contractor is responsible for providing all electrical power and CCTV cables including camera viewing and command/control. All cables placed above suspended ceilings shall be shielded, plenum rated.
- B. The contractor is responsible for determining the best cable routes and measuring and verifying all distances and materials required to complete this project as specified.
- C. Cables shall be routed in existing cable tray wherever possible. When cable trays are not available, cabling will be bundled with plenum rated strapping and suspended from structural members and not draped over existing appliances or other facility runs of any kind.
- D. Suspended cable runs shall be routed in order to provide enough slack so that the cabling bundle can be moved to accommodate future appliance installations.
- E. Cabling shall be run through existing holes or drill new holes as required to complete the project as specified. Cabling shall be run through holes drilled through the office hallway walls above the ceiling tile line for those locations along the outside walls. Contractor shall provide any fire stop as required. **NOTE:** Contractor shall operate a vacuum during all drilling operations to collect all dust.
- F. The contractor is responsible to remove, store, protect and replace all ceiling tiles required to be removed for the installation of this project.

- G. All cabling must be protected from tampering by placing in conduit in exterior locations and in exposed interior locations. Contractor to furnish and install conduit and raceways.
- H. One (1) existing underground PVC conduit is available for the contractor's use to route camera connections between the Metal Hanger Building and the Boat Shop Building. The contractor is permitted to use this available conduit for this contract and shall install a "pull" string for future use when installing cables for this work.
- I. The contractor shall provide a 120 volt electrical power strip, equipped with surge protection, for CCTV monitor, digital video recorder, power controls supply and control devices and locate inside the DVR equipment rack. Power cord shall extend to nearest wall receptacle in Room 102.

### **3.02 - MISCELLANEOUS**

- A. Furnish to the EPA's On Site Representative six (6) signs (8.5" x 11") stating that CCTV's are being used on this property. Signs shall be installed by the EPA.
- B. Provide in Room 102 one (1) wall mounted DVR equipment rack for the digital video recorder/ multiplexer, monitor, and related equipment. Rack should be sized to handle one (1) spare recorder to meet future needs. Rack shall be as detailed on drawings. Provide shelves inside rack enclosure as detailed on the drawings. Furnish one (1) additional shelf to the EPA's On Site Representative for future use.

### **3.03 - TRAINING**

- A. The contractor shall provide a minimum of eight (8) hours of on-site, hands-on training for Grosse Ile EPA staff to provide an overview of the hardware and software. The following topics shall be covered in detail: hardware diagnostic and troubleshooting, system navigation, passwords and general operating features.

### **3.04 - WARRANTY**

- A. The contractor shall provide a minimum three (3) year unconditional warranty against failure of installed equipment or installation labor. Warranty period shall begin upon completion of the work.

END